REMARKS

The application has been reviewed in light of the final Office Action dated December 16, 2003. Claims 1-8 were pending. By this Amendment, Applicants have canceled claim 5, without prejudice or disclaimer, amended claims 1 and 6-8, and added new claims 9-13 to place the claims in better form for examination and clarify the claimed invention. Accordingly, claims 1-4 and 6-13 are presented for examination, with claims 1 and 8 being in independent form.

Claims 1-4 and 8 were rejected under 35 U.S.C. §102(b) as purportedly anticipated by U.S. Patent No. 5,276,670 to Nogami et al. Claims 5-7 were rejected under 35 U.S.C. §103(a) as purportedly obvious over Nogami in view of JP patent publication no. 2000-222776A1 (Shibakuchi).

Applicants have carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 1 and 8 are patentable over the cited art, for at least the following reasons.

This application relates to a phase-change type optical information recording medium which has excellent recording and reproducing characteristics irrespective of the linear velocity.

In recent years, computers are becoming faster and faster, and an amount of data handled by the computers are increasing day by day. Disk driving units which can perform recording, reproduction, or erasing of information at high-speed have been developed to accommodate the needs of the computers. However, some disk driving units still work at lower speeds (than others). Although the recording and reproducing characteristics of conventional phase-change type optical information recording medium are optimized such that a high degree of modulation can be obtained and the generated jitter is low even at high linear velocity, as well as even after repetitive recording, there is a tendency that the characteristics of the recording signal at low linear velocity and after repetitive recording disadvantageously degrades. It is desirable that the

optical information recording media have recording and reproducing characteristics that allow the media to be used at a wide range of speeds and does not degrade after repeated use.

Applicants found through extensive experimentation that phase-change type optical information recording media having certain constructions and structures, as described in the application, can have excellent characteristics even over a range of low to high linear velocities. As described in the application at, for example, page 15, line 21 through page 16, line 22, when the recording layer is formed from AgInSbTe, the transition between the stable phase (i.e. the crystalline phase) formed by recording and the metastable phase (i.e. the amorphous phase) is clear, and therefore it can be used over a wide range of linear velocities.

For example, independent claim 1 is directed to a phase-change type optical information recording medium, wherein the recording layer includes as a main component $Ag\alpha In\beta Sb\gamma Te\delta$, where α, β, γ, and δ represent atomic percents, $0.1 \leq \alpha \leq 2.0$, $3.0 \leq \beta \leq 8.0$, $65.0 \leq \gamma \leq 75.0$, $15.0 \leq \delta \leq 30.0$, and $97 \leq \alpha + \beta + \gamma + \delta \leq 100$, and when a minimum recording linear velocity is V_1, a maximum recording linear velocity is V_2, and a degree of modulation at the time of reading out information is I(V), a value of $I(V_2)/I(V_1)$ is within a range from 1 to 1.2.

Independent claim 8 is directed to a phase-change type optical information recording medium comprising at least one recording layer which records information based on crystalline-to-crystalline or crystalline-to-amorphous transition, wherein the recording layer includes as a main component $Ag\alpha In\beta Sb\gamma Te\delta$ where α, β, γ, and δ represent atomic percents, $0.1 \leq \alpha \leq 2.0$, $3.0 \leq \beta \leq 8.0$, $65.0 \leq \gamma \leq 75.0$, $15.0 \leq \delta \leq 30.0$, and $97 \leq \alpha + \beta + \gamma + \delta \leq 100$, and when the minimum and maximum linear velocities of rotation are respectively V_1 and V_2, then a value of a degree of modulation corresponding to the maximum linear velocity $I(V_2)$ divided by a degree of modulation corresponding to the maximum linear velocity $I(V_1)$ is between 1 and 1.2.

Applicants respectfully submit that the cited art does not disclose or suggest the claimed

invention described in independent claims 1 and 8.

Nogami, as understood by Applicants, is directed to a phase change optical disk which purportedly does not require higher irradiation power at its outer peripheral position than that at its inner peripheral position, i.e. does not provide reduced recording sensitivity (or erasing sensitivity) at a position with a higher linear velocity. Nogami discloses a phase change optical disk having a recording film of a compound of In-Sb-Te having a composition of 21:36:43 (by atomic percent).

Shibakuchi, as understood by Applicants, is directed to a write-once optical recording medium in which information is recorded and reproduced through the phase transition of a recording material by irradiation with laser light. According to Shibakuchi, the change rate of reflectance due to the phase transition from an amorphous phase to a crystal phase is increased to increase the CN ratio of the reproduced signals and to obtain excellent storage property for a long time of the information. The Office Action cites Shibakuchi as purportedly disclosing a recording layer containing AgInSbTe as a main component, with nitrogen added thereto.

However, Applicants find no disclosure or suggestion by the cited art of a phase-change type optical information recording medium, wherein the recording layer includes as a main component $Ag_\alpha In_\beta Sb_\gamma Te_\delta$, where α, β, γ, and δ represent atomic percents, $0.1 \leq \alpha \leq 2.0$, $3.0 \leq \beta \leq 8.0$, $65.0 \leq \gamma \leq 75.0$, $15.0 \leq \delta \leq 30.0$, and $97 \leq \alpha + \beta + \gamma + \delta \leq 100$, and when a minimum recording linear velocity is V_1, a maximum recording linear velocity is V_2, and a degree of modulation at the time of reading out information is I(V), a value of $I(V_2)/I(V_1)$ is within a range from 1 to 1.2, as provided by the claimed invention recited in amended claims 1 and 8.

Since the cited art does not disclose or suggest each and every feature of the claimed invention, the cited art does not render the claimed invention unpatentable.

In addition, it is submitted that it would not have been obvious at the time the invention

was made to combine Nogami and Shibakuchi in the manner stated in the Office Action.

As pointed out above, Nogami discloses a phase change optical disk having a recording film of a certain construction, and describes assorted properties of the disk. However, Applicants find no suggestion in either reference the properties of the Nogami disk can be extended to a media adapted with the recording layer of Shibakuchi.

Accordingly, short of applying impermissible hindsight reconstruction using the claims as a roadmap, it would not have been obvious to combine Nogami and Shibakuchi in the manner suggested in the Office Action.

Accordingly, for at least the above-stated reasons, Applicants respectfully submit that independent claims 1 and 8, and the claims depending therefrom, are patentable over the cited art.

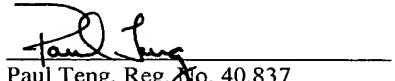
If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125.

The Office is hereby authorized to charge any additional fees that may be required in connection with this response and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Allowance of this application is respectfully requested.

Respectfully submitted,



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